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# GEOGRAPHIC STRUCTURE OF MILK PRICES 1964-65

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## PREFACE

This study of the intermarket price structure for fluid milk analyzes the current situation and changes during the past 11 years. Earlier USDA studies dealing with this subject include:

"Geographic Structure of Milk Prices, 1960-61," ERS-71, Aug. 1962, by W. T. Butz; "Geographic Structure of Milk Prices, 1957-58," AMS-328, July 1959, by L. F. Herrmann and Helen V. Smith; and "Regulations Affecting the Movement and Merchandising of Milk," Mktg. Res. Rpt. 98, June 1955.

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## SUMMARY

Dealers' buying prices for fluid milk tend to increase with distance from the major supply areas. Improved technology in transportation lowers these geographical price differences, while higher factor prices paid by transportation firms increase them. These two elements, moving in opposite directions, have been offsetting each other for several years.

In 1964-65, prices increased an average of 18.2 cents per 100 pounds with each 100-mile increase in distance from Eau Claire, Wis., the usual starting point for comparing prices in U.S. markets. Actual prices paid by handlers deviated from the computed price of milk at Eau Claire plus transfer costs. Some causes of these deviations include: (1) The relatively large size of production and shipping areas (computed prices are based on specific shipping points); (2) the wide dispersion of production and marketing areas; (3) the restrictive or stimulating effect of institutional and regulatory arrangements; (4) the difference in products included in fluid categories in various markets; and (5) the size of market areas and the resultant problem of inter- vs. intra-market price alignment.

Transportation rates and handling charges are subject to negotiation, and vary between marketing areas and from season to season. In 1964-65, long-distance hauling charges averaged 16 cents per 100 pounds per 100 miles.

Blend prices in 1964-65 increased an average of 15.6 cents per 100 pounds with each 100 miles distance from Eau Claire. The price for milk used in manufactured milk products bears little relationship to distance.

Dealers' buying prices reflect the local market situation and do not represent the price at which milk is available for shipment to other markets or the price at which dealers would be willing to absorb large volumes of milk from other areas.

# GEOGRAPHIC STRUCTURE OF MILK PRICES, 1964-65

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## INTRODUCTION

Distance from major supply areas to markets is a key factor in the geographic structure of prices of many farm products, including milk for fluid use. Under conditions of unrestricted movement of milk, differences in Class I prices would reflect transfer costs between markets. Price-distance analyses of actual prices paid by dealers are useful in identifying markets where Class I prices deviate from the average relationship between dealers' buying prices and distance. In addition to distance from major milk supply areas, other reasons for differences in prices dealers pay are (1) the Federal, State, and local milk regulations; (2) the supply and demand situations in the local markets; and (3) the bargaining positions of producers and distributors. This report deals primarily with the price-distance relationship.

## PRICE SURFACES OF DEALERS' BUYING PRICES: 1964-65 AND 1960-61

The geographic structure of milk prices during July 1964-June 1965 is illustrated by the map in figure 1. The price contours were prepared by plotting the Class I prices in local markets, <sup>1/</sup> starting with \$4.00 per 100 pounds and increasing the price by 46 cents (approximately 1 cent per quart) in each price zone. This is the method that was used to prepare comparable price surface maps for three earlier periods. <sup>2/</sup>

The lowest prices occur in the heavy milk-producing areas in Wisconsin and Minnesota. Eau Claire, Wis., near the center of this area, has traditionally been used as a base point for comparing prices in other markets in the United States. Prices tend to increase with distance from Eau Claire, although not at a uniform rate.

The zone with prices below \$4.00 has tended to shrink slightly in area since 1953-54. The outlines of the \$4.46 and \$4.92 price zones remained relatively stable from 1957-58 to 1964-65, except for some contraction along the southern boundary, which had occurred by 1960-61, and a slight contraction along the western portion of the zone (fig. 2).

In the southwest, movement of the \$5.38 price contour line farther southward and westward reflected the continuing trend to lower prices in the region. Prices in 1964-65 were below \$5.38 in large areas of Texas, New Mexico, Utah, Nevada, and California. The coastal area of Oregon and Northern California barely reached the \$5.38 level with prices of \$5.38 and \$5.40. The \$5.84 price zone no longer appeared on the west coast or in Texas. A small area of New Mexico was the only area in the west or southwest reporting a price above \$5.84. Montana was the only western area with an increase over 1960-61 prices, moving that State above the \$5.38 mark.

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<sup>1/</sup> F.o.b. city, adjusted to 3.5 percent butterfat. Prices include negotiated premiums, if any, as reported in the Fluid Milk and Cream Report, Statis. Rptg. Serv., U.S. Dept. Agr.

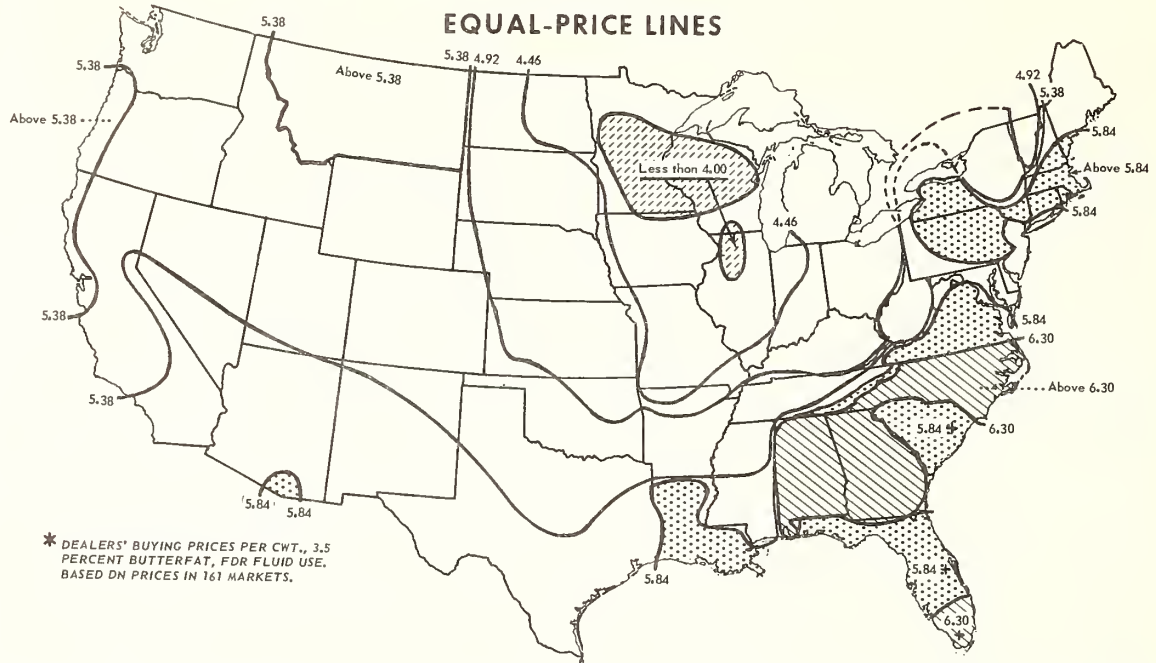
<sup>2/</sup> See Preface for listing of earlier publications.



# PRICE STRUCTURE FOR MILK\*

July 1964 - June 1965

## EQUAL-PRICE LINES



U. S. DEPARTMENT OF AGRICULTURE

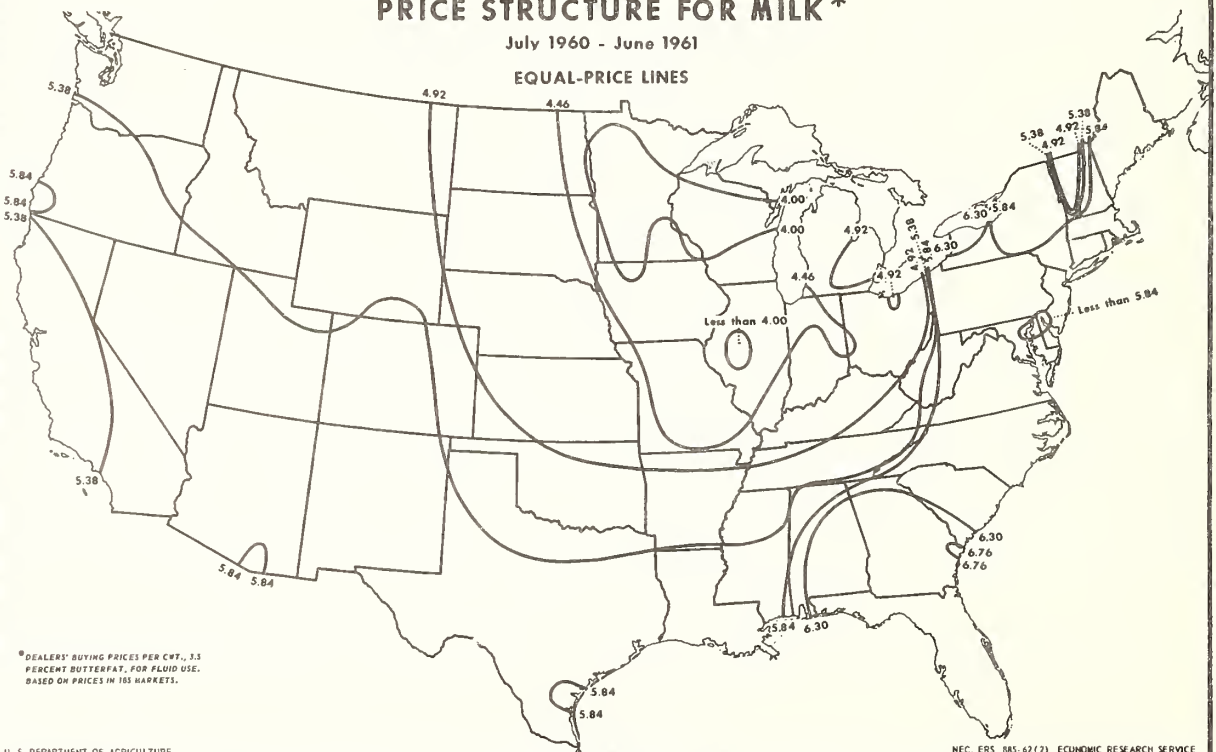
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Figure 1

# PRICE STRUCTURE FOR MILK\*

July 1960 - June 1961

## EQUAL-PRICE LINES



U. S. DEPARTMENT OF AGRICULTURE

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Figure 2



In the southeast, the \$6.76 price zone had disappeared by 1964-65. In Florida, prices decreased so that only the southern one-fourth of the State had average prices above \$6.30. Higher average prices in Alabama, Georgia, and North Carolina caused the \$6.30 price zone to expand to include these States. Prices in Louisiana increased from the \$5.38 level to above \$5.84.

Prices paid by handlers in the northeast were generally lower in 1964-65 than in 1953-54, 1957-58, and 1960-61. Prices declined from \$5.84 in 1960-61 to \$5.38 in 1964-65 in large areas of Pennsylvania, West Virginia, Maryland, Delaware, New Jersey, Maine, and New York. No markets north of North Carolina reported prices as high as \$6.30, so that this zone--which had been decreasing in size--now disappeared from the northeast. Vermont prices were slightly higher than in 1960-61, but were still in the range of \$4.46-\$4.92, the lowest in the eastern region. The contrast between prices in Vermont and surrounding markets was less pronounced than in earlier years.

Prices paid by handlers in the eastern area continued to be relatively high compared with the rest of the Nation. Prices in the far west continued to be considerably below the level which would encourage shipments from areas east of the Rockies. Relatively large surpluses, even in some previously deficit markets, further limited long-distance milk shipments.

#### BUYING PRICES RELATED TO DISTANCE

The relationship of dealers' buying prices to distance from Eau Claire is expressed in figure 3 as a straight line regression for 136 markets east of the Rockies. (See table 1.) The regression indicates a price of \$3.73 at Eau Claire, \$0.20 above the local dealers' buying prices at that point. The regression shows an average increase of 18.2 cents per 100 pounds for each 100 miles from Eau Claire, a little less than in previous analyses. This analysis, like the others, shows 75 percent of the variation in Class I prices to be associated with distance.

Table 1.--Dealers' buying prices, f.o.b. city, compared with calculated prices, 136 markets east of Rocky Mountains, 1964-65 <sup>1/</sup>

Region	: Markets in which dealers' : : buying prices exceed : : calculated prices by--			: Markets in which dealers' : : buying prices are below : : calculated prices by--			All markets
	1-25	26-50	Over 50	1-25	26-50	Over 50	
	cents	cents	cents	cents	cents	cents	
	Number	Number	Number	Number	Number	Number	
New England.....	3	--	--	7	--	3	<u>2/</u> 14
Middle Atlantic.....	5	3	5	1	4	--	18
East North Central...	9	1	--	15	5	--	30
West North Central...	8	1	--	8	--	3	20
South Atlantic.....	3	3	9	5	2	--	<u>2/</u> 23
East South Central...	3	--	3	6	2	--	14
West South Central...	3	2	--	2	4	1	12
Mountain.....	0	--	--	4	--	1	5
Total.....	34	10	17	48	17	8	<u>3/</u> 136

<sup>1/</sup> Based on regression of dealers' buying prices on distance from Eau Claire, Wis. Prices in both series adjusted to 3.5 percent butterfat.

<sup>2/</sup> Includes 1 market in which dealers' buying price is equal to calculated price.

<sup>3/</sup> Includes 2 markets in which dealers' buying prices are equal to calculated prices.

In 136 Markets East of Rockies

**FLUID MILK PRICES RELATED TO DISTANCE  
FROM WISCONSIN, JULY 1964-JUNE 1965**

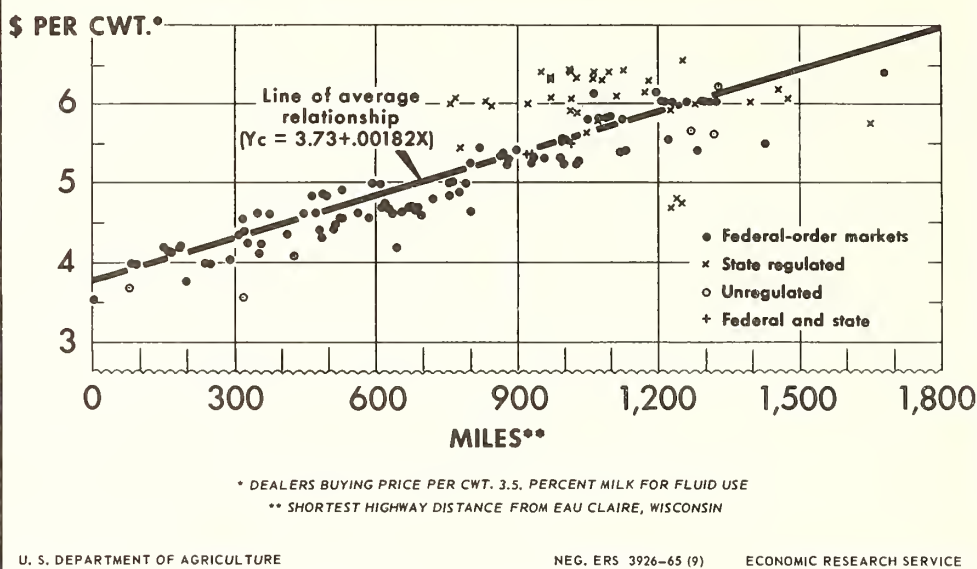


Figure 3

Average hauling rates decreased from 16.4 cents in 1960-61 to 16 cents in 1964-65. This average was computed from charges on actual shipments rather than published rates. The charges varied from 12.9 to 18.4 cents. Although handling charges were not measured in this analysis, the 37 cents per 100 pounds average handling charge in 1960-61 appears to be applicable, although buyer resistance is increasing. Both transportation rates and handling charges vary, as they are subject to negotiation under extremely different supply-demand conditions.

Prices in Federal order markets in 1964-65 continued to deviate from the computed average prices less than those in State-regulated or unregulated markets. Average deviations in 28 selected markets (table 2) point up the relative changes over time.

One would expect a greater expression of competitive and institutional differences in local markets as distance from the major supply area increases. Markets more than 700 miles from Eau Claire show greater dispersion from the line of average relationship than do the closer markets. In 1964-65, prices in these areas were above the calculated prices in 42 markets, the same in two, and lower in 41. In 19 of the markets closer than 700 miles, prices were higher than the calculated prices and in 32, prices were lower. The extreme variations were Erie, Pa., 764 miles from Eau Claire, with a price 96 cents above the regression line, and Burlington, Vt., 1,226 miles distant, with a price \$1.25 below the line. Prices in these two markets were equal to the Eau Claire price plus 33.4 cents and 9.6 cents, respectively, per 100 pounds per 100 miles.

Midwest prices plus transfer costs tend to establish a ceiling which other markets can exceed to a significant degree only by maintaining restrictive practices. Milk

Table 2.--Dealers' buying prices, f.o.b. city, compared with calculated prices, 28 selected markets, 1953-54, 1957-58, 1960-61, and 1964-65 1/

Region and market	Amount by which dealers' buying prices deviate from calculated price			
	1953-54	1957-58	1960-61	1964-65
	Dollars	Dollars	Dollars	Dollars
New England:				
Boston.....	-0.59	-0.07	-0.08	- .07
Burlington.....	-1.63	-1.34	-1.35	-1.25
Portland.....	- .43	- .34	- .03	- .20
Middle Atlantic:				
Camden.....	- .12	.21	.17	.13
New York.....	.22	.47	.35	.08
Philadelphia.....	- .09	.25	.34	.14
Pittsburgh.....	.83	1.14	1.18	.30
East North Central:				
Chicago.....	- .14	- .10	.04	- .06
Cincinnati.....	- .05	- .01	- .05	- .11
Detroit.....	- .23	.10	.26	.18
Indianapolis.....	- .15	.07	.11	- .17
Milwaukee.....	- .16	- .02	.17	.02
West North Central:				
Des Moines.....	.37	.36	.17	.07
Kansas City.....	- .12	- .02	- .07	- .13
Minneapolis.....	.23	.30	.23	.10
Omaha.....	.22	.26	.25	.09
St. Louis.....	.05	- .22	- .27	- .22
South Atlantic:				
Charlotte.....	.32	.43	.54	.74
Jacksonville.....	.76	.56	.50	.09
Miami.....	- .02	- .46	- .55	- .38
Richmond.....	.80	.66	.37	.60
Savannah.....	.86	.61	.83	.56
Washington.....	1.08	1.23	.28	.0
East South Central:				
Birmingham.....	.54	.59	.77	.83
Louisville.....	- .14	- .27	- .22	- .17
West South Central:				
Dallas.....	- .30	- .32	- .29	- .36
New Orleans.....	.08	- .37	- .14	.24
Mountain, Denver.....	.58	.51	.22	- .10
Average deviations: <u>2/</u>				
All markets.....	.40	.40	.35	.26
Federal markets.....	.19	.22	.22	.15
State markets (non-Federal).....	.63	.65	.64	.64
Unregulated markets <u>3/</u> .....	.54	.54	.16	.09

1/ Based on regression of dealers' buying prices on distance from Eau Claire, Wis. All prices adjusted to 3.5 percent butterfat. 2/ Average of absolute deviations, that is, deviations without regard to sign. 3/ Includes 4 markets in 1953-54 and 1957-58, 2 in 1960-61, and 1 in 1964-65.

need not actually move between the major supply area and a specific market; potential movement influences price alignment. The converse is also true. Movement, or even potential movement, provides a sort of price floor in supply areas relative to other markets.

These price relationships are not exact. While prices in other markets tend to equal Wisconsin prices plus transfer costs, numerous local considerations influence prices in specific markets. The difference must be enough to provide an incentive before milk will be shipped between areas.

Milk marketing firms attempt to follow a pricing and procurement policy which will provide them with a supply to meet most of their local needs. Supplementary supplies are generally available to cover the variations in supply and demand. The quoted prices in a given market do not indicate that milk is available for regular shipment to other markets at that price. Neither do they indicate the price level at which the local market would be able to absorb shipments from other areas.

#### RELATIONSHIP OF BLEND PRICE AND DISTANCE

The regression of blend or uniform prices <sup>3/</sup> on distance in 1964-65 indicates a blend price of \$3.38 for Eau Claire with an average increase in other markets of 15.6 cents per 100 pounds for each 100 miles distance (fig. 4). This compares with \$3.51 and 13.8 cents during 1960-61. Three-fourths of the 85 markets were paying blend prices within 25 cents of the calculated prices (table 3).

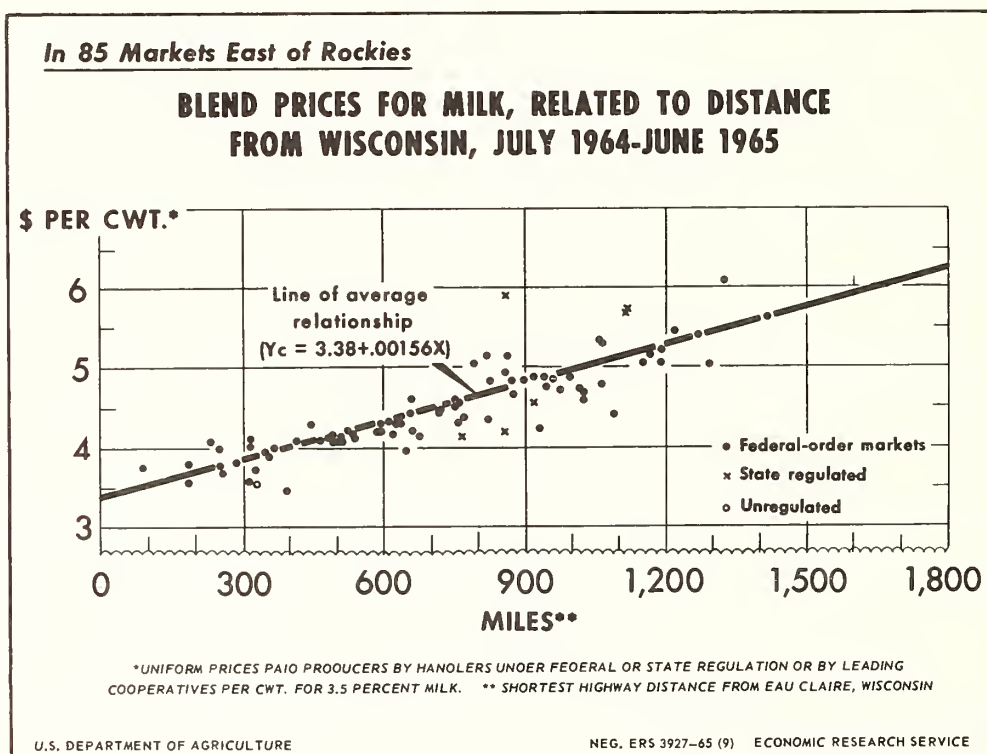


Figure 4

<sup>3/</sup> Price paid to all or the major group of producers in the market for all pooled milk. Price includes general premiums negotiated by producers' associations, but excludes bulk tank or other special premiums.



Table 3.--Comparison of actual blend prices and calculated blend prices,  
85 markets, July 1964-June 1965 1/

Region	Markets in which actual blend exceeds calculated blend by--			Markets in which actual blend is less than calculated blend by--			Total markets
	1-25	26-50	Over 50	1-25	26-50	Over 50	
	cents	cents	cents	cents	cents	cents	
	Number	Number	Number	Number	Number	Number	
New England.....	1	--	--	--	--	1	2
Middle Atlantic.....	--	1	--	--	3	1	5
East North Central...	4	1	--	18	--	--	23
West North Central...	9	--	--	6	5	--	20
South Atlantic.....	2	--	3	2	--	--	7
East South Central...	5	--	1	2	1	--	<u>2/11</u>
West South Central...	2	2	1	7	3	--	15
Mountain.....	--	--	--	1	--	--	<u>2/ 2</u>
Total.....	23	4	5	36	12	2	<u>2/85</u>

1/ Based on regression of blend prices on distance from Eau Claire, Wis.

2/ Includes markets in which blend price is equal to calculated price.

The blend price paid to producers depends upon the price levels of the separate classes of milk and the relative amount of milk used in each class. Blend prices tend to reflect local market supply-demand situations other than institutional arrangements more completely than do Class I prices. Intermarket milk shipments are generally made in response to the incentives provided by difference between Class I prices, while producers tend to shift from one market to another in response to the blend price.

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